

REMARKS

Claims 1-11 are pending in this application. Claims 8-11 are withdrawn from consideration. By this Amendment, claims 1 and 3-5 are amended. No new matter is added.

In paragraph 2, on page 2, the Office Action rejects claims 1, 2 and 7 under 35 U.S.C. §102(b) as being anticipated by Hoffman et al. (Hoffman), U.S. Patent No. 6,737,750. The rejection is respectfully traversed.

Applicant's claim 1 recites a method of manufacturing an electronic device, the method comprising forming an external terminal on an interconnect pattern formed on a substrate; subsequently mounting a chip component on the substrate face up, the chip component having an electrode on a first surface of the chip component opposite to a second surface facing the substrate; forming an insulating section adjacent to the chip component; and forming an interconnect on the insulating section from the electrode to the interconnect pattern for electrically connecting the electrode and the interconnect pattern at a temperature lower than a melting point of the external terminal. Hoffman fails to disclose or suggest all of these features.

As acknowledged by the Office Action in paragraph 3, on page 3, Hoffman fails to disclose forming an insulating section adjacent to the chip component, as recited in amended claim 1. Thus, Hoffman also fails to disclose forming an interconnect on the insulating section from the electrode to the interconnect pattern for electrically connecting the electrode and the interconnect pattern, as recited in amended claim 1.

Further, Hoffman fails to disclose forming an interconnect on the insulating section from the electrode to the interconnect pattern for electrically connecting the electrode and the interconnect pattern at a temperature lower than a melting point of the external terminal, as recited in claim 1.

The Office Action alleges that in Hoffman the manufacture of the substrate 10 including the formation of the conductive balls 15 (external terminals) is completed prior to the forming of the conductive wires 18 (interconnect) (Fig. 1). Based on this premise, the Office Action asserts that it would be inherent that the process of forming the interconnect is done below the melting point of the conductive balls 15 (external terminals) in order to not cause damage to the conductive balls 15 (external terminals). However, Hoffman teaches in Fig. 15 and col. 11, line 61 to col. 13, line 15 that the formation of the conductive balls 15 (external terminals) is carried out in step 216, well after the forming of the conductive wires 18 takes place in step 206. Thus, in Hoffman the conductive wires 18 (interconnect) are susceptible to a melting point temperature of the external terminal. Therefore, it is not inherent in Hoffman that the process of forming the interconnect is done below the melting point of the external terminals.

To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference. Inherency, however, may not be established by probabilities or possibilities and the mere fact that a certain thing may result from a given set of circumstances is not sufficient to establish the inherency of that result (MPEP §2112 IV). Here, the Office Action incorrectly asserts that the manufacture of the substrate 10 including the formation of the conductive balls 15 (external terminals) is completed prior to the forming of the conductive wires 18 (interconnect). Thus, the Office Action has not met its burden of making clear that the method of Hoffman necessarily forms an interconnect on the insulating section from the electrode to the interconnect pattern for electrically connecting the electrode and the interconnect pattern at a temperature lower than a melting point of the external terminal. Therefore, Hoffman does not explicitly or inherently disclose or suggest all of the features recited in Applicant's claim 1.

Thus, Hoffman fails to literally disclose the features of Applicant's claim 1 and a rejection under 35 U.S.C. §102(b) is inappropriate. Further, for at least the reasons discussed above, Hoffman does not suggest the invention of Applicant's claim 1. Likewise, because claims 2 and 7 incorporate the features of claim 1, Hoffman fails to anticipate or suggest the features of these claims for at least the reasons discussed with respect to claim 1, as well as for the additional features recited therein.

Therefore, it is respectfully requested the rejection be withdrawn.

In paragraph 3, on page 3, the Office Action rejects claims 3-6 under 35 U.S.C. §103(a) over Hoffman in view of Kunitomo. The rejection is respectfully traversed.

By this Amendment, features of claim 3 are incorporated into amended claim 1. However, these features, as previously presented in claim 3 and currently recited in amended claim 1, are not suggested by the combination of Kunitomo and Hoffman. The Office Action on page 4 alleges that Kunitomo discloses forming an insulating section (resin 14) adjacent to the chip component (Fig. 9). The Office Action further alleges that one skilled in the art would be motivated to combine this feature of Kunitomo with the method of Hoffman for alternatively electrically connecting the die in a flip-chip connection. However, in a flip-chip connection the semiconductor chip is mounted on the insulating substrate face down (Kunitomo Fig. 7 and col. 7, lines 43-51). In the method of Applicant's claim 1, on the other hand, the chip component is mounted on the substrate face up. Thus, because the combination of Hoffman and Kunitomo would suggest mounting the semiconductor chip on the insulating substrate with its top surface face down, the alleged combination cannot suggest all of the features of Applicant's amended claim 1. In fact, it teaches the opposite and thus "teaches away" from Applicants' invention of claim 1.

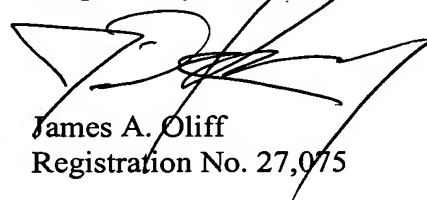
Because the combination of Kunitomo and Hoffman fails to suggest all of the features of claim 1, as discussed above, the combination cannot suggest the subject matter of claims 3-6, which depend from claim 1, for at least those reasons as well as for the additional features recited therein.

Therefore, it is respectfully requested the rejection be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-7 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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